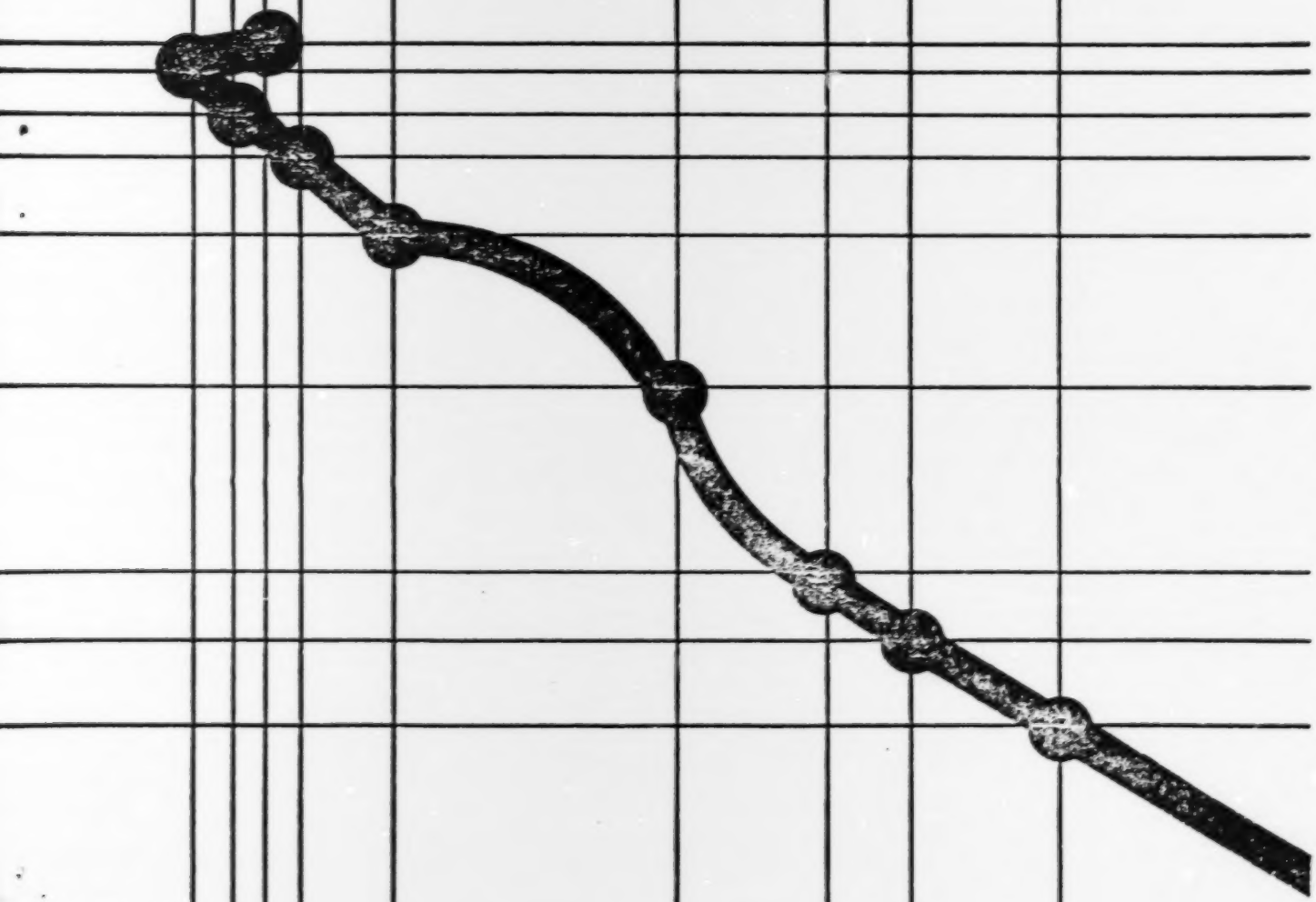
# Planning for the Community & Rapid Transit

ALRT ALIGNMENT LANDSCAPING GUIDELINES

A Discussion Paper



May, 1983

CITY OF VANCOUVER
Park Board
Planning Department
Engineering Department

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## INTRODUCTION

Planning and construction of the Advanced Light Rapid Transit (ALRT) system for the Lower Mainland is well underway. As the details of the design fall into place, it is vital to ensure that the system is integrated into and comfortably fits its urban setting. Landscaping is one of the important means by which this integration can be achieved.

The purpose of this discussion paper is to provide guidance, from the City's perspective, for B.C. Transit in carrying out their responsibility for landscaping the ALRT right-of-way in Vancouver. The focus of this discussion is on the naturalistic landscape treatment needed along the right-of-way as an integral part of system development. The more structured treatments needed at station sites such as decorative paving, street furniture and lighting are being dealt with separately in the dialogue betwen City staff and B.C. Transit's station architects. Landscaping and recreational developments linked but separate from the ALRT system (such as park upgrading, neighbourhood walkways and public amenities) may be alluded to in this paper to the extent that the ALRT right-of-way treatment must be responsive to them, but will be dealt with in detail elsewhere. The ideas presented here have been developed cooperatively by civic staff from the Vancouver Park Board and the Vancouver Planning and Engineering Departments.

In framing an ALRT landscaping concept, the City's urban design and neighbourhood context have been considered and overall design objectives are suggested. Specific applications of the basic ideas are presented as possible solutions to illustrate the intent and concerns of the City but are not intended to exclude other treatments that may perform equally well. What is important is a commitment by all involved to use landscaping to meet clear, agreed upon functional and aesthetic objectives, to achieve a coherent system-wide design for landscaping and to install enough landscaping from the outset to be effective.

ALRT landscaping must respond to the needs of nearby residents as well as transit riders. For ALRT riders, landscaping can enhance the interest of the journey by making different areas along the way more comprehensible. It can also frame handsome views and screen unattractive locations. For the adjacent community, landscaping can help to blend the ALRT system with the neighbourhood environment, thus protecting rather than damaging the setting. It can enhance the system's appearance and reduce negative impacts on nearby properties. It can also play a positive role in accommodating or enhancing public pedestrian circulation and recreation along some parts of the alignment, especially where this has existed on an informal basis over past years.

ALRT landscaping should also reflect a cost conscious approach both in terms of original capital investment and ongoing maintenance budgets. While responsibilities for maintenance and upkeep of landscaping must be the subject of further discussion because of the varying jurisdiction over land within and abutting the ALRT alignment, it is in everyone's interest to make sure from the beginning that landscaping is relatively self sustaining without costly ongoing attention.

This paper should at the outset provide a focus for discussion between community residents, the City and B.C. Transit staff on this important matter. As specific proposals are presented by B.C. Transit's design consultants, the ideas herein will be the basis for City staff review and comment. Ultimately, based upon agreements emerging from this dialogue, this paper will be used as background for specific reports to the Vancouver Park Board and Vancouver City Council.

## BACKGROUND

a. What is the ALRT System?

The ALRT system consists of electrically powered cars running on a grade-separated guideway. Although the trains are automatically operated, staff will be on duty to provide passenger security and assistance.

The cars are 40' long, about the size of a standard bus, and normally will carry 75 passengers - 40 seated and 35 standing. Trains will operate with four cars during the day and two cars during evenings and on Sundays.

The trains, travelling at speeds of up to 70 km/hr., will operate daily between 6:00 a.m. and 2:00 a.m. at intervals ranging from 1 3/4 minutes to 5 minutes. The trip between New Westminster and downtown Vancouver will take approximately 30 minutes.

The bus system will be reorganized so that buses will stop at stations to drop off and pick up passengers.

b. What is the Route

The first phase of ALRT is now under construction between downtown Vancover and New Westminster. This section will open in 1986 with a demonstration track in operation along Terminal Avenue by mid-1983. Planned extensions run from New Westminster to Coquitlam and Surrey with a possible later route from downtown Vancouver to Richmond.

The route in Vancouver starts at the Seabus Station (on the waterfront) and goes through the Dunsmuir tunnel to the B.C. Place Stadium. From there it will run elevated parallel to the Georgia Viaduct and south to Main Street and Terminal. The track is elevated along the median of Terminal Avenue; it will then continue south across the railyards and along the south side of the Grandview Highway to Commercial Drive. At Commercial Drive, B.C. Transit proposes to place an elevated guideway adjacent to the east lane. City Council prefers an underground alignment along Commercial Drive. Further east, the route is elevated along the Victoria Diversion and then continues eastward onto the existing B.C. Hydro right-of-way. The guideway remains elevated to Nanaimo Street and is then at grade to Penticton Street. From there it is in a cut to Manor Street, elevated to Ann Street and at grade to Boundary Road.

Within the area between Main Street and Boundary Road, the focus of this discussion paper, there are five stations: Main Street, Broadway, Nanaimo Street, 29th Avenue and Joyce Street.

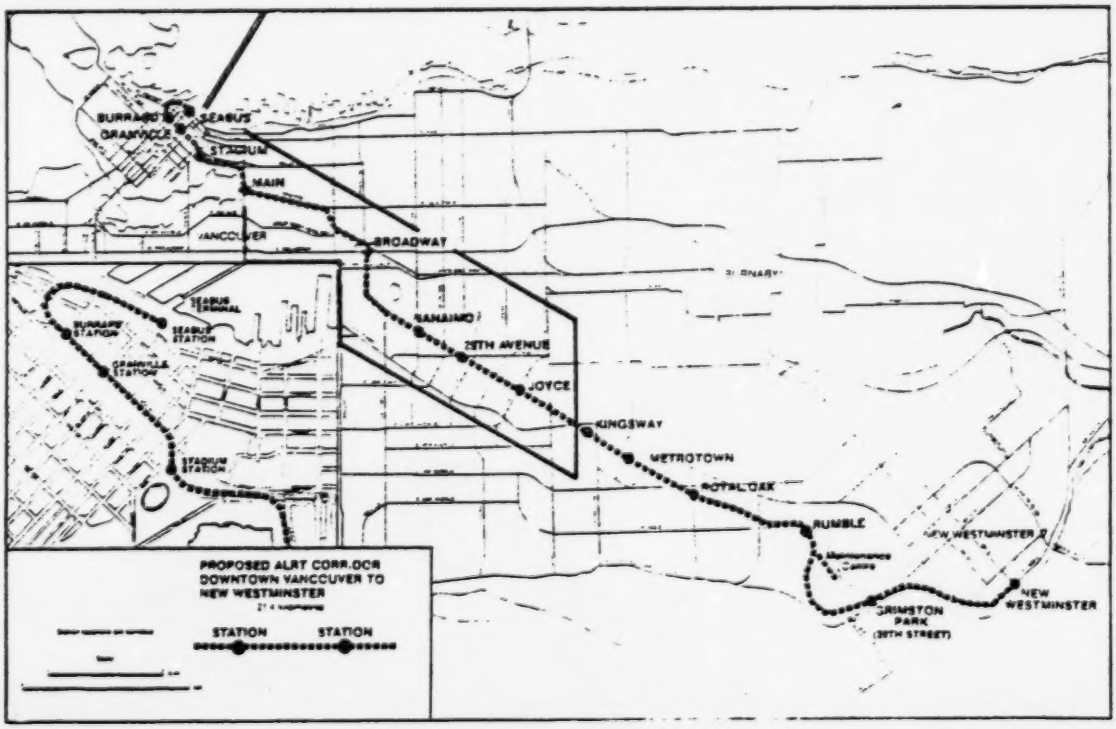
c. Who is Building ALRT

British Columbia Transit (BCT) is a Provincial Crown Corporation having overall supervision and control of the project.

Responsibility for ALRT policy rests with the Rapid Transit '86 Committee which is comprised of representatives appointed by the Greater Vancouver Regional District, the Province and B.C. Transit.

The City of Vancouver plays an advisory role in ALRT design and construction. The City will also relocate utilities and the street system to accommodate ALRT construction and operation.

City staff are reviewing station designs and have initiated planning programs around the stations in order to ensure that City development objectives are met and that the system fits well in the urban environment. Similarly, this discussion paper is intended to contribute to the development of a landscape treatment which maximizes the degree of fit between the system and its environment.



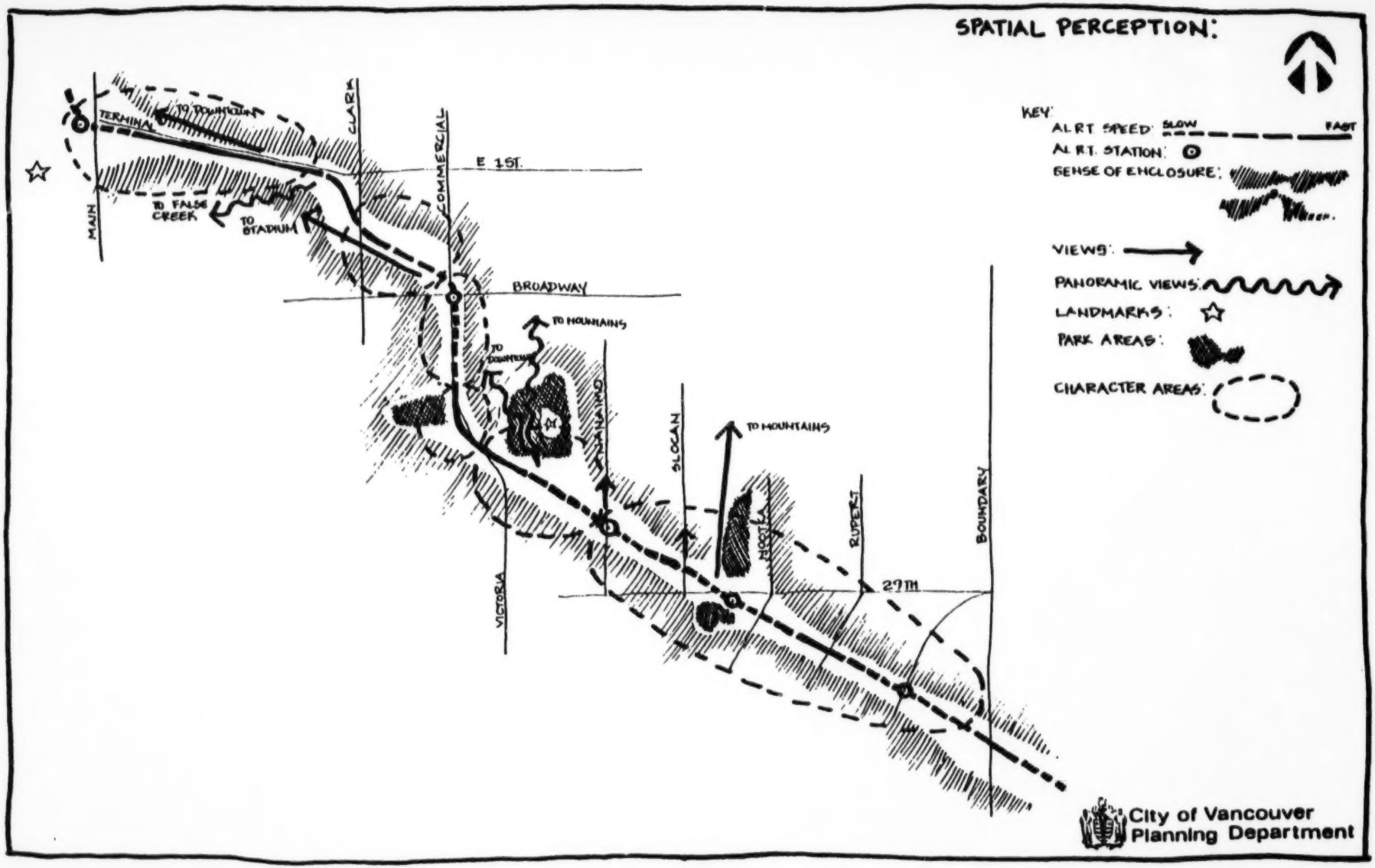
d. Urban Design Context

It is important that a landscaping design for ALRT reflect its urban design context in the City. Environmental constraints and opportunities along the ALRT route must be clearly identified so that, in design terms, negative impacts can be addressed and positive opportunities can be enhanced.

The urban design process involves identifying essential urban elements. These include the visual and functional interrelationships between buildings, open spaces, traffic arteries, topography and land forms; activity nodes and major community facilities; and, residential interfaces with other kinds of land uses. The analysis must be sensitive to elements that are closely associated with the guideway and elements which are far away but linked by significant views.

The urban design product is a set of conceptual guidelines in graphic form. These articulate the environmental influences and forces to which the development of a specific landscape scheme should respond. The guidelines must deal with both the urban form or structures of the physical environment of the route and how it will be perceived. They must also deal with the scale and hierarchy of the route's elements - the buildings/landscaping, the neighbourhoods, the districts and the city-scaled image of the route in its entirety.

Six distinctive character areas are discernable along the ALRT route east of Main Street. The Terminal Avenue, Grandview Highway, and Commercial Drive segments must respond to a relatively urban situation with closely spaced structures, minimal landscaping and high levels of traffic; although the Grandview Highway section also displays some suburban features because it skirts the Grandview Cut railway revine which has mostly natural growth. The Victoria Diversion, Vanness West and Vanness East segments must fit within a more suburban residential setting with typically lush landscaping, much space between buildings, smaller structures and less traffic; however, the Victoria Diversion segment acts as the transition having some more urban elements such as nearby commercial and residential buildings. The neighbourhood areas have distinctive historical identity while at several key locations, spectacular panoramic views or distant glimpses provide a perceptual link to the larger city-especially downtown and the north shore mountains. Within each character area are a variety of specific features and differing depth perception that create the urban design context of ALRT. These features are illustrated in detail later in this paper but the following sketch summarizes the overall situation.


SPATIAL PERCEPTION:
KEY:
A.L.R.T. SPEED: SLOW FAST
A.L.R.T. STATION:
SENSE OF ENCLOSURE:
VIEWS:
PANORAMIC VIEWS:
LANDMARKS:
PARK AREAS:
CHARACTER AREAS:
TERMINAL
TO DOWNTOWN
MAIN
TO FALSE CREEK
TO STADIUM
CLARK
COMMERCIAL
E 1ST.
BROADWAY
TO MOUNTAINS
TO DOWNTOWN
VICTORIA
NANAIMO
SLOCAN
TO MOUNTAINS
HOOTE
RUPERT
29TH
BOUNDARY
City of Vancouver
Planning Department

## OVERALL CONCEPT

Appropriate landscaping must be a central concern in the design of the ALRT system -- it should not be an afterthought. Landscaping should be used to beautify the system but, more importantly, it should help to reconcile ALRT with its host environment.

A restorative approach to landscaping -- that is, essentially putting back the amount and type of growth now existing along the ALRT alignment -- will in most cases not be adequate. Much of the existing alignment is now relatively passive in terms of its impacts on the community, such that formal landscaping has not been vital. Typical boulevard treatments (as along the Victoria Diversion) or casual growth (as along the B.C. Hydro right-of-way) have been sufficient to satisfy most people's needs. Because of the scale of its structures and the activity of its operation, ALRT will transform the alignment into a major influence on its setting. The existing type of planting would simply be overwhelmed by the new system and would be inadequate to resolve its impacts.

Generally, landscaping for ALRT should be conceived in a similar way as landscaping for any conventional building or structure in the city. Landscaping must play an aesthetic and functional role. In aesthetic terms, the landscaping should contribute to the abundant, verdant character of Vancouver and it should reflect the sense of seasons experienced in British Columbia. At the same time, by use of a selected palette of plants, a continuity and theme for landscaping can be achieved. Naked, unlandscaped structures are not acceptable to Vancouverites. In functional terms, landscaping should help ALRT respond to its urban design context -- in the immediate sense by screening and buffering adjacent residences, protecting privacy and helping moderate the discrepancy of scale between structures; and in the larger sense by reflecting land forms, linking to existing landscaping elements, enhancing mountain and urban views and highlighting key patterns of use. Because the context of plant life is so full, a minimum planting scheme could not fulfill such functional objectives.

An adequate scheme of ALRT landscaping will meet the needs of transit riders, neighbouring residents and the operators of the system.

- For neighbouring residents, the key requirement is comfortable co-existence. Landscaping must reduce loss of privacy, feeling of intrusion, light overspill, perception of noise and the harshness of the concrete structure and/or chainlink fences. Landscaping must preserve and frame views as well as enhance planting patterns, pedestrian pathways and public safety.

- For transit riders, the key requirements are orientation and comprehension of the environment of the trip. Landscaping should protect distant views, highlight major location points, and emphasize differing areas, especially the transition between the suburban and urban settings.

- For system operators, the key requirements are security and low maintenance. The landscaping should help deflect people and animals from the protected right-of-way and it should be essentially self-sustaining after the initial gestation period.

The City understands that it may take some time to complete the landscaping program and that it may require changes once ALRT has been operating for the initial time. The concern of the City is that there be enough landscaping at the outset to resolve critical conflicts, that there be a pre-agreed phasing for upgrading of the initial planting and that there be flexibility at all times to add landscaping to resolve some unforeseen problem or capture some unpredicted opportunity.

OBJECTIVES

To foster the landscaping philosophy outlined above, the following list of objectives have been developed by City staff to guide the design process for landscaping of the ALRT right-of-way.

Safety and Security

Maximize safety to residents living along the ALRT right-of-way and minimize the possibility of vandalism to the system.

The design of the guideway makes the separation of the right-of-way mandatory along the length of the alignment. Fencing and effective grade changes must form a continuous barrier from all crossings, neighbourhoods and other train tracks where switchmen and crews will be at work.

Railways have experienced a variety of problems in areas throughout Vancouver involving the throwing of rubbish, stones, shopping carts etc. These incidents have not been frequent but have caused serious damage and must be minimized through protective design.

While security fencing and other deterrents must be adequate they should also be subtle enough to avoid sparking destructive challenges and attractive enough to blend in harmoniously with the surroundings.

Privacy

Ensure that the impact on privacy of local residents living adjacent to the ALRT right-of-way is minimized.

Although much of the ALRT alignment passes in front of houses facing the street, there are areas where the backyards of homes will be overlooked by train users. Privacy becomes an important concern. Such overviewing by passengers could be minimized, not only through the use of a continuous fencing screen but by sensitive landscape treatments, especially where the impact is very severe.

Views

Respect the mountain view of residents along the ALRT right-of-way and exploit the possibilities of panoramic views for the enjoyment of the transit rider.

At several points along the proposed alignment, there are some breathtaking views of the North Shore Mountains

and the downtown skyline. Parks and nearby hills also create interesting vistas. Nearer to the City centre, there are some clear views of civic reference points such as the new Stadium, Harbour Centre and the Marine Building. It should be possible to create a pleasant journey through Vancouver that enhances these views. On the other hand, some residents now have great views across the right-of-way from their homes. Where possible, these views should be preserved or at least framed by landscaping.

Screening

Ensure that the visual impact and noise of the ALRT system are screened.

a) Visual

The elevated guideway of the ALRT system, even though well designed in-and-of itself, imposes in some situations large masses of concrete into small to medium scale residential areas. Considertion must be given to those local residents for whom the system may appear visually intrusive. Further, those viewing the system from moving vehicles or simply as a pedestrian must also be given consideration. Screening and softening of guideway components therefore becomes an important element of design in the development of ALRT, especially where strong visual intrusion is evident.

b) Noise

ALRT noise studies show that while ALRT is quieter than most other light rail transit systems, the trains will still generate noise impacts. At normal cruising speed, ALRT will create noise levels in excess of 55 dB (leq) (CMHC maximum noise criterion for outdoor residential spaces) within 110'from the guideway between waterfront station and Nanaimo Street under 1986 operating conditions and within 180' if the system is expanded to its capacity. Between Nanaimo Street and New Westminster, the distances will be 70' and 125' respectively. Noise impacts can be dealt with where ALRT is at grade or in cut through the erections of barriers such as fences and berms - trees and shrubs are useful as psychological dampers but provide very little actual shielding from noise. Barriers must be continuous and have an impervious surface weighing at least 9.7 kg/sq. m. (2 lbs./sq. ft.). Minimizing noise impacts when ALRT is elevated is a difficult challenge as the use of traditional noise barriers is usually not feasible.

Amenities

Optimize over the long run the potential for linear, public open space use of the width of B.C. Hydro right-of-way that is not required for the ALRT track.

In the suburban portion of the system, the width of the old B.C. Hydro right-of-way varies from 22 to 33 m which is in excess of the required 6.6 to 10 m for ALRT. There are opportunities to utilize this space for cycle paths, pedestrian walkways and buffer landscape strips to formalize existing recreational use of the right-of-way.

Negotiations with B.C. Hydro at the co-operative initiative of the City, B.C. Transit and perhaps the Municipality of Burnaby should begin directly to secure use of residual right-of-way land for recreational uses.

Seasonal Appeal

Ensure that the landscape treatment defines winter, spring, summer and fall as experienced by west coast residents.

Vancouver affords four beautiful seasons. Seasonal change, which is expressed by changes in landscape materials, should be incorporated into the design concept of the ALRT by selection of plant materials that ensure adequate seasonal change.

Theme

Establish distinctive character through plant material along the ALRT track.

Continuity of character should be created by using a limited number of species of trees and groundcovers. Distinction for individual segments should be achieved through the selection of different varieties of the same species.

Low Cost Maintenance

Develop a landscape concept which is low in maintenance costs.

While the landscape concept must have aesthetic appeal, it must also require little ongoing maintenance which would drain operating budgets or simply not get done. It should be noted that landscape maintenance costs are generally somewhat higher in the initial establishment period.

## DETAILED LANDSCAPE GUIDELINES

The purpose of this section is to outline in detail the urban design issues and features that should shape the specific ALRT landscaping scheme. To illustrate a sensitive response to these urban design factors as well as the design objectives and general philosophy already discussed, an actual landscaping concept is also presented. These specific applications are put forward as good solutions with the understanding that alternative solutions may be equal or better. The City will support design alternatives that satisfy the needs and concerns that are expressed throughout this paper.

The B.C. Place and Downtown portions of the route have been excluded from this analysis. At B.C. Place both the A.L.R.T. system and its environment are being designed concurrently, while in the Downtown area the system is underground. This paper therefore discusses the easterly portion of the route between Main Street and Boundary Road, where the new system has to be integrated with the existing urban environment.

The right-of-way has been divided into six segments, each having distinctive character and illustrating differing landscape applications which meet the overall objectives. The six segments are as follows:

- Terminal Avenue (Main Street to Clark Drive)
- Grandview Highway (Clark Drive to Commercial Drive)
- Commercial Drive (Grandview Highway to the Victoria Diversion)
- Victoria Diversion (Commercial Drive to the B.C. Hydro right-of-way)
- Vanness West (Hull Street to Nanaimo Street)
- Vanness East (Nanaimo Street to Boundary Road)

For each segment two sketches are included. The first illustrates urban design guidelines and the second illustrates a suggested design response.

Each urban design guideline sketch is a synthesis of the distinct characteristics the City feels are important. While the sketches do not cover every linear foot along the entire route, they do establish the principles to be adhered to in each area in terms of:

Physical Features of the Route - Embankments, gradients, vegetation, building characteristics, landmarks, bridges, cuts, etc.;

Spatial Perception of the Route - Types and location of views, spatial depth along the route, directional emphasis of views, edge, boundaries, etc.; and

Functional Characteristics of the Route - Neighbourhood, districts, residential areas, activity nodes, parks, dense areas, not dense areas, etc.

Each accompanying design sketch reflects an overall theme concentrating on a naturalistic solution using different varieties of several key plant species such as pine, maple, dogwood, natural grasses and ivy. The similarity of species provides continuity along the full length of the alignment while the differentiation of varieties and planting patterns allows character changes along the route.

In a conceptual sense, the alignment can be said to pass through two major types of areas that suggest alternative landscape treatments. There are the more formal "urban" segments along Terminal Avenue and Commercial Drive and there are more "surburban" residential segments along the Grandview Highway and east of the Victoria Diversion. The suggested "urban" treatment includes hardy domesticated ground covers and shrubs to provide a green protective belt along the transit system with regularly spaced deciduous or coniferous trees for height or emphasis. The suggested "suburban" treatment includes a more open, seemingly random planting of meadows with natural grasses and wildflowers complementing clumps of pine and maple where specific screening or framing of distant views is needed. Protective planting is also suggested where the track is at or below grade to reinforce and camouflage the chainlink fences which would otherwise appear rather stark.

Recreational development in the form of a linear walkway is also discussed. The main purpose of a linear walkway is to take advantage of an opportunity to link large existing and proposed parks and public facilities within central-east Vancouver and central west Burnaby. Midway between Downtown Vancouver and Burnaby Metrotown is John Hendry Park which includes Trout Lake and a Community Centre. To the east of John Hendry Park on the western flanks of the Burnaby Metrotown, is Central Park. About midway between John Hendry Park and Central Park is an assembly of north/south oriented green spaces reflecting the historical Renfrew ravine. These major recreation endowments are already partially linked by pathways and used by pedestrians on an informal basis, via the B.C. Hydro right-of-way.

TERMINAL AVENUE

Terminal Avenue is an arterial street prividing access to the core area of downtown Vancouver. Bordered on both sides by industry, views of the downtown office towers and north shore mountains merge, making this area one of the major view gateway areas to the downtown core. The elevated guideway itself is the dominant element in this area.

Landscape Concept

Landscaping in the form of an impenetrable ground cover is suggested under the guideway to complement the existing boulevard. A vigorous evergreen vine that will eventually establish itself on the guideway supports may be preferred. The actual guideway should be accentuated by the landscaping rather than screened.

In addition, cluster plantings of ornamental flowering trees are suggested adjacent to the supports, to provide year round appeal while softening the rigid vertical appearance created by the supports.

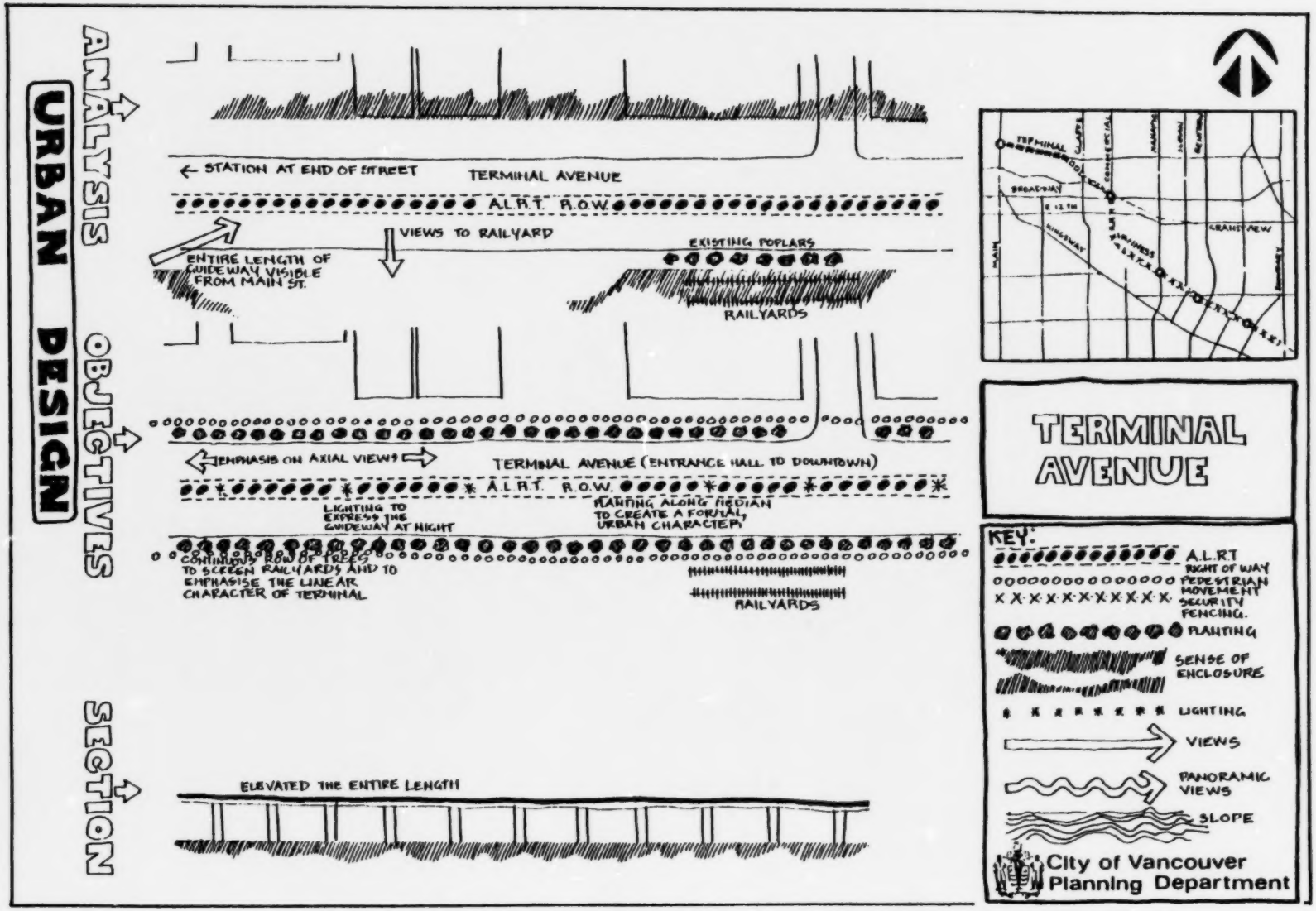
English Ivy (Hedera Helix) could be used as the ground cover, with Flowering Dogwoods (Cornus Florida Cherokee Chief) implemented as the ornamental trees. When combined with an English Ivy ground cover, flowering dogwoods, which symbolize British Columbia, pose an excellent addition to complement a formal, simple landscape concept for Terminal Avenue. This landscaping would be attractive to those driving by.

The tall stands of poplars south of Terminal Avenue and the mature trees in Thornton Park should be preserved. In addition, boulevard trees on the north and south sides of Terminal Avenue are suggested.

These street plantings of large trees not to exceed 12 m in height would be useful in screening unsightly warehouse facades and roofs as well as unwanted views of rail yard activities.

Caution must be applied to ensure the trees are placed so that they screen undesirable views and enhance (or frame) distinctive views while avoiding any complications with existing utilities.

Large maple and/or pine trees could be used for their large scale and year round appeal. Norway Maples (Acer Platanoides Drummondii) and/or Austrian Pines are suggested in this situation.


URBAN DESIGN
ANALYSIS
OBJECTIVES
SECTION
← STATION AT END OF STREET
TERMINAL AVENUE
A.L.R.T. R.O.W.
VIEWS TO RAILYARD
ENTIRE LENGTH OF GUIDEWAY VISIBLE FROM MAIN ST.
EXISTING POPLARS
RAILYARDS
EMPHASIS ON AXIAL VIEWS
TERMINAL AVENUE (ENTRANCE HALL TO DOWNTOWN)
A.L.R.T. R.O.W.
LIGHTING TO EXPRESS THE GUIDEWAY AT NIGHT
PLANTING ALONG MEDIAN TO CREATE A FORMAL URBAN CHARACTER
CONTINUOUS ROW OF TREES TO SCREEN RAILYARDS AND TO EMPHASISE THE LINEAR CHARACTER OF TERMINAL
RAILYARDS
ELEVATED THE ENTIRE LENGTH
TERMINAL
BROADWAY
MAIN
GRANDVIEW
TERMINAL AVENUE
KEY:
A.L.R.T. RIGHT OF WAY
PEDESTRIAN MOVEMENT
SECURITY FENCING.
PLANTING
SENSE OF ENCLOSURE
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PANORAMIC VIEWS
SLOPE
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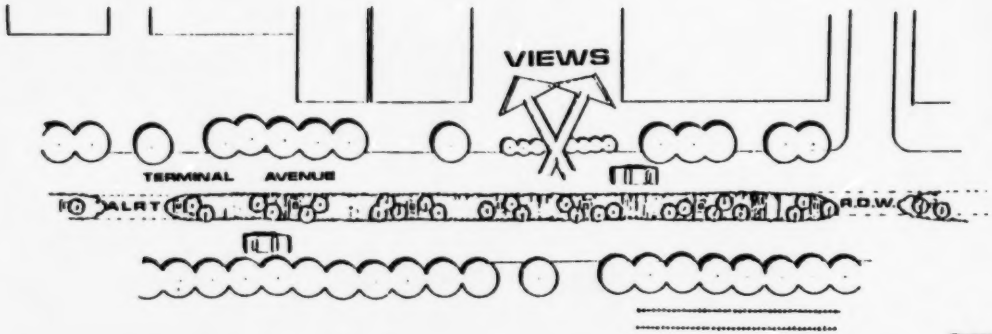
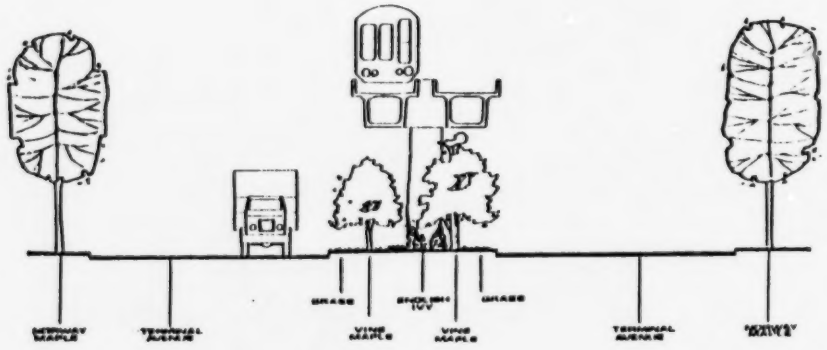



PLAN



SECTION

- OBJECTIVES

  - VIEWS

    Respect the panoramic view of residence along the ALRT right-of-way and exploit the possibilities of panoramic views for the enjoyment of the transit rider

  - LOW COST MAINTENANCE

    Develop a landscape concept which is low in maintenance costs

  - SEASONAL APPEAL

    Ensure that the landscape treatment defines each of the four seasons, winter, spring, summer and fall experienced by West Coast residents

- PLANT MATERIALS

  - ACER CIRCINATUM (VINE MAPLE)

    A native of the Northwest and one of the best trees for any landscaping project. Vine-red and white flowers in April. Brilliant golden and red fall colouring

  - ACER PLATANOIDES (NORWAY MAPLE)

    A fast growing tree. Conspicuous clusters of yellow flowers produced on bare branches in April. Bright yellow leaves in fall

  - QUERCUS ROBUR (ENGLISH TYPE)

    Vigorous evergreen tree with small, dark green leathery leaves. Hardy, out of shade

BOARD OF PARKS AND RECREATION
CITY OF VANCOUVER
2099 BEACH AVENUE

A. L. R. T. LANDSCAPING

TERMINAL AVENUE

GRANDVIEW HIGHWAY

This section of Grandview Highway is bordered by older, medium density housing to the north and the BNR/CNR railway cut to the south. The elevated guideway running along the north side of the cut affords mountain views for the transit rider.

Local residents will experience the guideway structure as a strong physical presence while at the same time, having their privacy reduced by A.L.R.T. users.

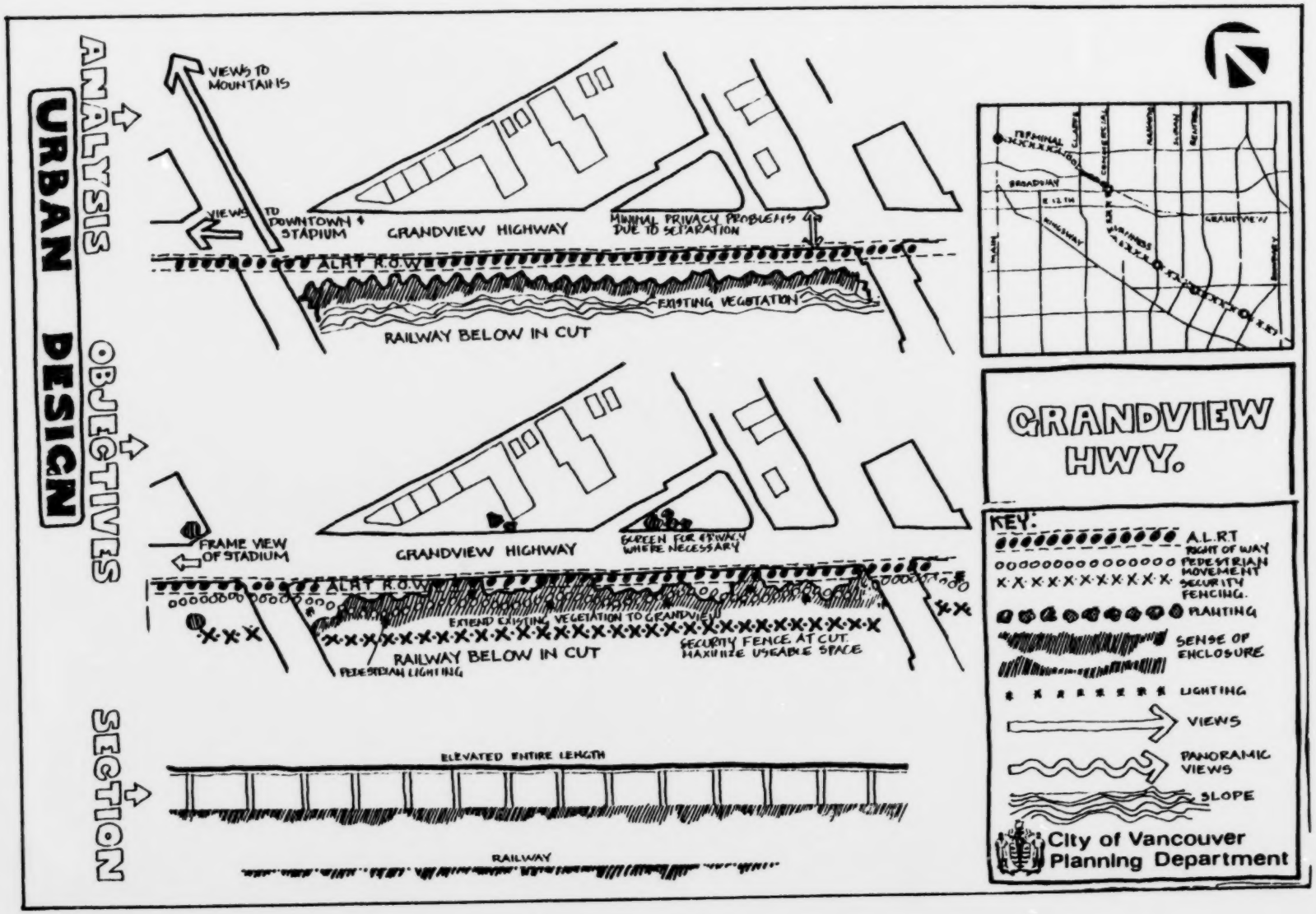
Landscape Concept

Street plantings of large deciduous and coniferous trees, are suggested for the north side of Grandview Highway. The trees should provide some screening (coniferous) for the neighbourhood while affording A.L.R.T. riders views (deciduous) where residential privacy is not a factor. It is suggested that the trees not exceed 12 m in height.

Large maples and pyramidal cedars are suggested, noting that these should be located so as to cause minimal amounts of shadow and undesirable view blockage.

An English Ivy ground cover is suggested immediately underneath the guideway along with clumps of Flowering Dogwoods adjacent to the vertical supports.

Caution must be taken to preserve, where possible, the existing vegetation in the BNR cut to help screen south side residents from the impact of the A.L.R.T. This vegetation should also extend under the R.O.W. and to Granview Highway, integrated with the treatment noted above.


URBAN DESIGN
ANALYSIS
OBJECTIVES
SECTION
VIEWS TO MOUNTAINS
VIEWS TO DOWNTOWN + STADIUM
GRANDVIEW HIGHWAY
MINIMAL PRIVACY PROBLEMS DUE TO SEPARATION
A.L.R.T. R.O.W.
EXISTING VEGETATION
RAILWAY BELOW IN CUT
FRAME VIEW OF STADIUM
GRANDVIEW HIGHWAY
SCREEN FOR PRIVACY WHERE NECESSARY
A.L.R.T. R.O.W.
EXTEND EXISTING VEGETATION TO GRANDVIEW
SECURITY FENCE AT CUT. MAXIMIZE USEABLE SPACE
RAILWAY BELOW IN CUT
PEDESTRIAN LIGHTING
ELEVATED ENTIRE LENGTH
RAILWAY
TERMINAL
BROADWAY
E 12TH
HIGHWAY
GRANDVIEW
GRANDVIEW HWY.
KEY:
A.L.R.T. RIGHT OF WAY
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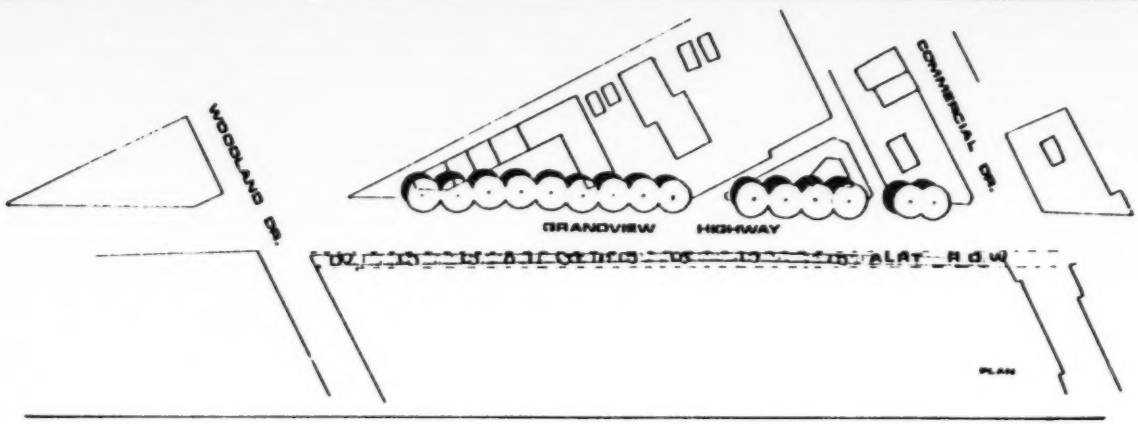


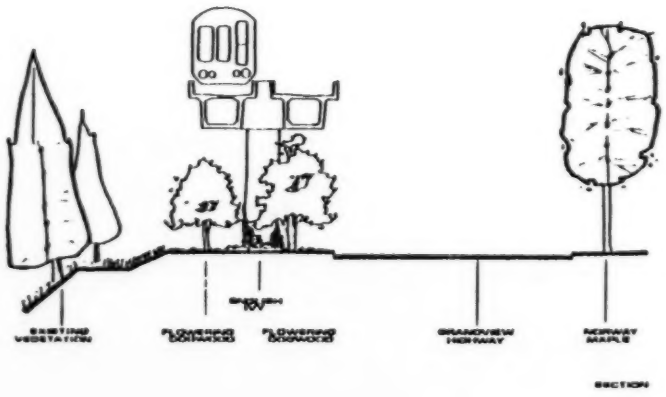


SECTION

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  - VIEWS

    Respect the mountain views of residents along the ALRT and exploit the possibilities of panoramic views for the enjoyment of the transit rider.
  - PRIVACY

    Ensure that the impact on privacy of local residents living adjacent to the ALRT right-of-way is reduced.
  - LOW COST MAINTENANCE

    Develop a landscape concept which is low in maintenance costs.
  - SEASONAL APPEAL

    Ensure that the landscape treatment defines each of the four seasons - winter, spring, summer and fall experienced by the west coast residents.

- PLANT MATERIALS

  FLOWERING "PARK" ELEMENTS (POINTS)
  - Small bushy tree with horizontal branching pattern. Red flowers cover the whole tree in May. Dark coloured foliage in fall.
  - RED FLOWERING (NORWAY MAPLE)

    A fast growing tree. Conspicuous clusters of yellow flowers produced on bare branches in April. Bright yellow leaves in fall.
  - HEDGE MASS (SHRUBS ETC)

    Vigorous evergreen vine with small, dark green leathery leaves. Hardy, out of shade.

BOARD OF PARKS AND RECREATION
CITY OF VANCOUVER
2099 BEACH AVENUE

PROJECT TITLE
A. L. R. T. LANDSCAPING

SHEET TITLE
GRANDVIEW HIGHWAY

COMMERCIAL DRIVE

This section of the line is characterized by a thin strip of commercial development that divides the residential areas either side of Commercial Drive. The neighbourhood depth perception is shallow - a series of tree-lined streets and single houses comprise the only views on either side of Commercial Drive.

City Council is in favour of a cut and cover tunnel under Commercial Drive, while B.C. Transit is in the process of implementing an elevated guideway down the east lane. For either option, there will be a station situated in the vicinity of Commercial Drive and Broadway.

Landscape Concept

If Vancouver's proposal of a cut and cover tunnel is implemented, no additional landscaping will be required except where the tunnel emerges south of 16th Avenue.

If B.C. Transit's proposal for an elevated guideway along the east lane of Commercial Drive is implemented, landscaping in the following manner is suggested.

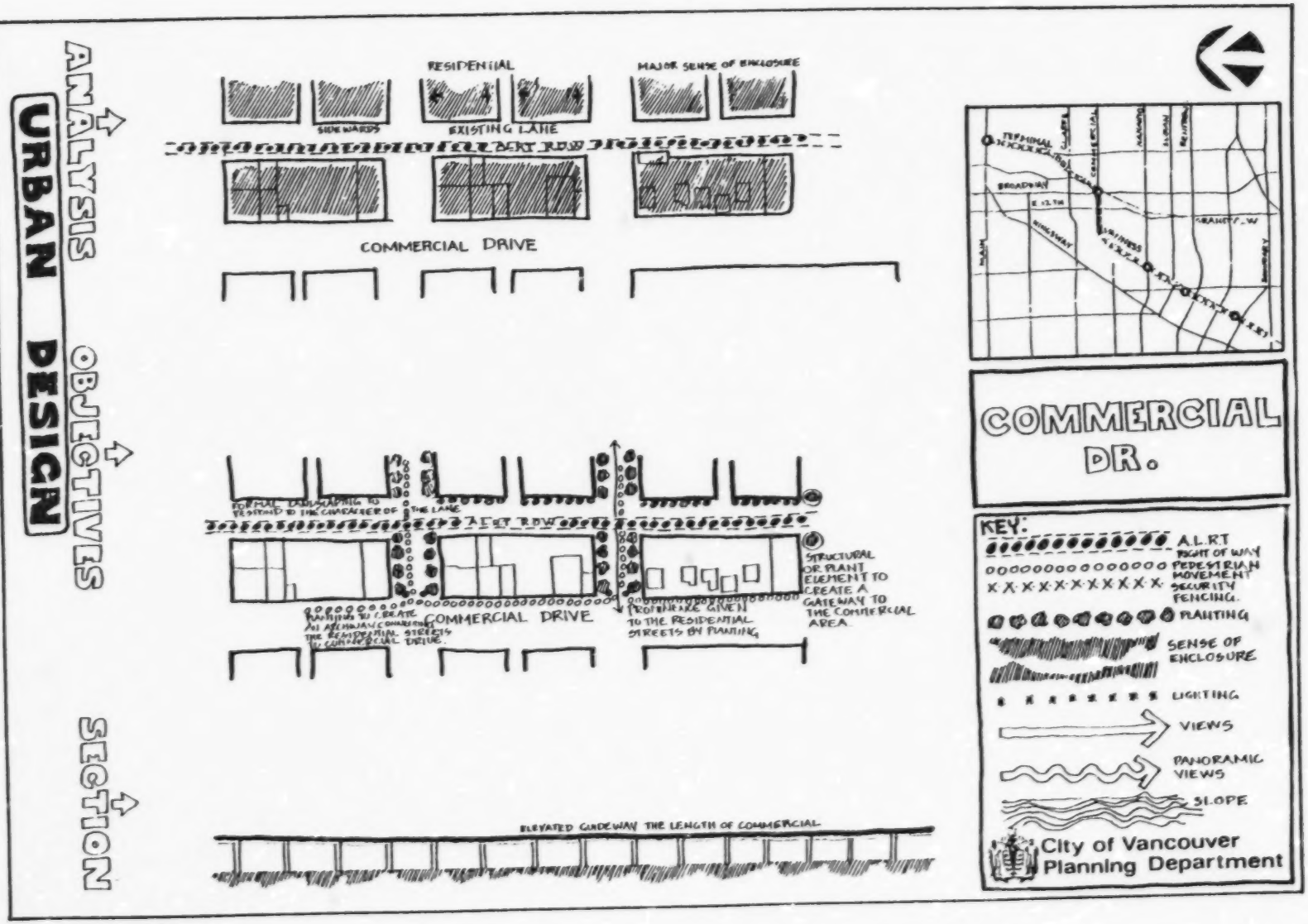
A new residential development east of the elevated A.L.R.T. guideway has been proposed to more effectively screen susceptible neighbourhood areas from noise and privacy invasion. The proposed development will facilitate a wall free of windows on that side of the development which is exposed to the A.L.R.T.

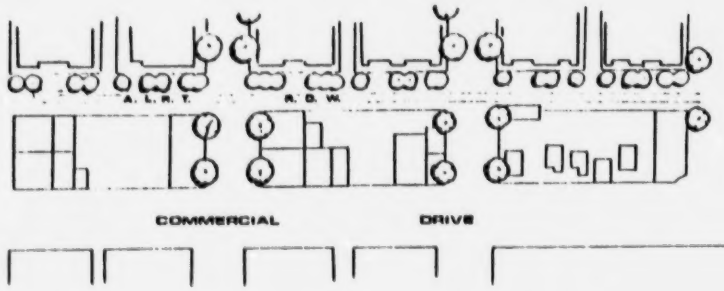
In addition to new intervening development, stands of columnar coniferous plantings adjacent to the right-of-way are suggested as a technique to screen private yard uses from the A.L.R.T.

The Commercial Drive alignment, due to its location along a commercial lane will take on a more urban character than any other stretch outside the downtown core. This aspect should be developed as a positive element. A formal landscaping treatment for the lane may be the most appropriate design solution. The lane could become a secondary pedestrian route and ultimately some commercial uses could

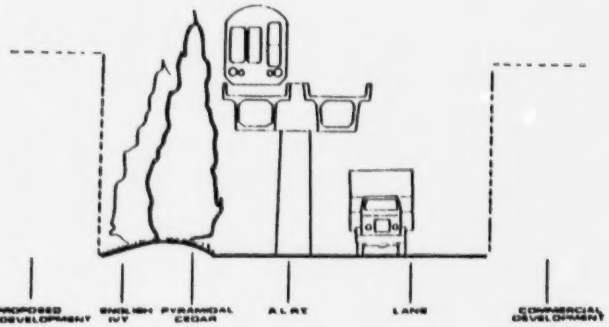
actually open up to it. In addition, some space may be developed for vehicular parking and can possibly ease the burden of parking congestion that currently exists for Commercial Drive shops. Clearly defined gateways into this area could be articulated through special planting that can be appreciated by local people and transit riders alike.

Additional attention must be given to landscape treatments which will lessen the visual impact of the guideway where it crosses residential streets. Large deciduous trees, which at maturity, possess large crowns capable of spreading 6.6 to 10m in width are suitable. These trees will define the entrance to the residential areas. Maples are suggested as street tree plantings and when implemented could significantly reduce the impact of the guideway on homes as well as give more prominence to the streets, giving the impression of them cutting through the guideway, rather than the other way around.


URBAN DESIGN
ANALYSIS
OBJECTIVES
SECTION
RESIDENTIAL
MAJOR SENSE OF ENCLOSURE
SIDEWALKS
EXISTING LANE
COMMERCIAL DRIVE
FORMAL LANDSCAPING TO CONTRAST TO THE CHARACTER OF THE LANE
PLANTING TO CREATE AN AMBIANCE CHARACTERISTIC OF THE RESIDENTIAL STREETS TO COMMERCIAL DRIVE.
COMMERCIAL DRIVE
STRUCTURAL OR PLANT ELEMENT TO CREATE A GATEWAY TO THE COMMERCIAL AREA
EMPHASIS GIVEN TO THE RESIDENTIAL STREETS BY PLANTING
ELEVATED GATEWAY THE LENGTH OF COMMERCIAL
COMMERCIAL DR.
KEY:
A.L.R.T. RIGHT OF WAY
PEDESTRIAN MOVEMENT SECURITY FENCING.
PLANTING
SENSE OF ENCLOSURE
LIGHTING
VIEWS
PANORAMIC VIEWS
SLOPE
City of Vancouver
Planning Department




PLAN




SECTION

- OBJECTIVES
  - PRIVACY
    Ensure that the impact on privacy of local residents living adjacent to the ALRT right-of-way is reduced
  - LOW COST MAINTENANCE
    Develop a landscape concept which is low in maintenance costs

- PLANT MATERIALS
  - DECIDUOUS (PARTIALLY EVERGREEN) ORNAMENTAL CLIMBER
    Narrow, dense, erect, pyramidal form, very popular for screening green foliage. No trimming required
  - WINTER CREEP EUONYMUS (VT)
    Vigorous evergreen vine with small dark green leathery leaves. Hardy, sun or shady.

BOARD OF PARKS AND RECREATION
CITY OF VANCOUVER
2099 BEACH AVENUE

PROJECT TITLE
A. L. R. T.
LANDSCAPING

SHEET TITLE
COMMERCIAL DRIVE

VICTORIA DIVERSION

Characterized by a mix of commercial and residential land uses, this segment of the alignment contains a number of vacant parcels. In addition, some of the commercial uses are marginal. It is probable that obsolete uses and vacant lands could be assembled for redevelopment that is sensitive to the A.L.R.T. guideway.

Landscape Concept

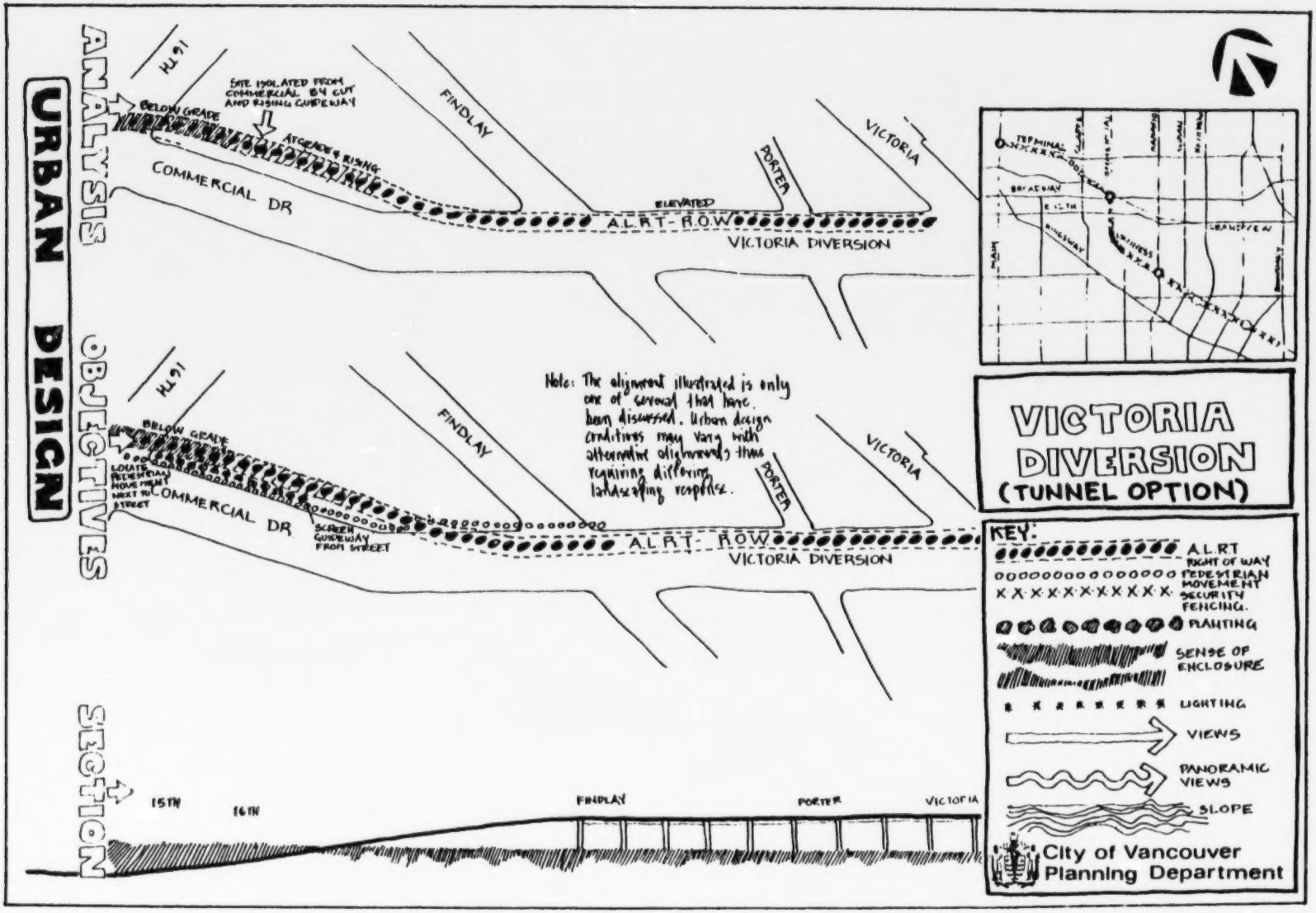
B.C. Transit intends to build the A.L.R.T. alignment on the north side of the Victoria Diversion to allow traffic flows to continue uninterrupted. The guideway would ultimately be less conspicuous, tending to blend somewhat with the expected redevelopment on the north side. This may lessen the urgency for street tree plantings on the south side, but plantings would be needed to screen the concrete massing of the horizontal guideway beams from local residents.

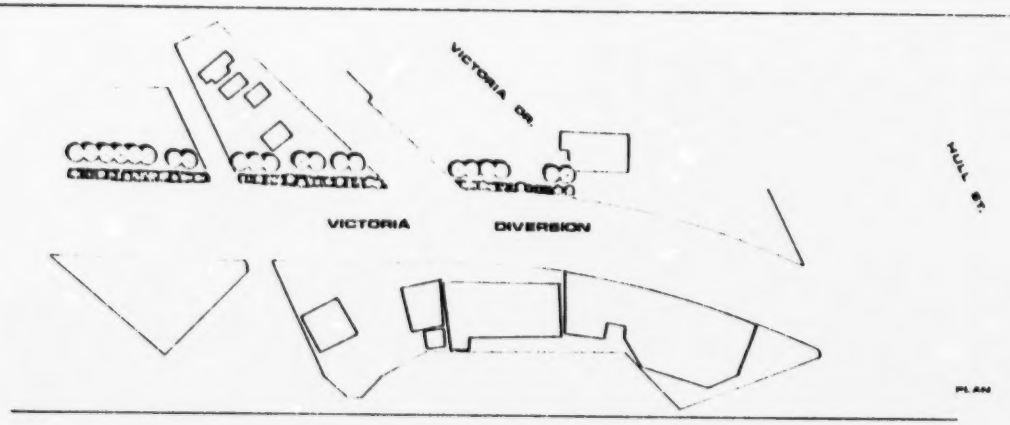
Althouth there is limited area, plantings of columnar cedars are suggested on the north side of the sidewalk to soften the negative impact of the elevated guideway from adjacent buildings, and to complement Vancouver's "green" image. Grass is suggested under the guideway adjacent to the street curb to accommodate curbside parking.

However, it should be noted that to meet all the requirements of the suggested landscape treatment for the Victoria Diversion, additional space, north of the guideway, is required. The additional space should be utilized for the implementation of cedars as a buffer and/or screen. The use of cedars may be accommodated through a small setback of any new development which may occur along the north side of the diversion. Should the option of new development be discarded, screening between the guideway and the existing buildings becomes very difficult to achieve.

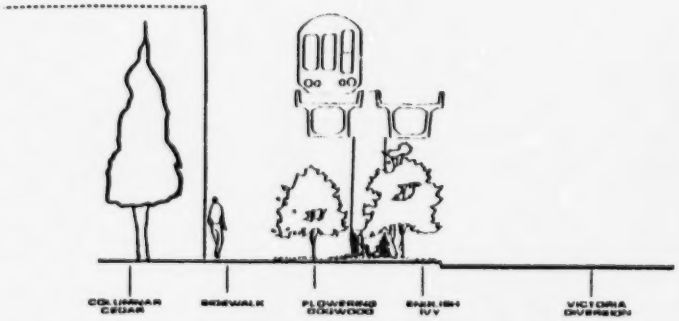
If the option of having the A.L.R.T. below grade along the Commercial Drive alignment is realized, the guideway will begin to emerge south of Sixteenth Avenue and along the Victoria Diversion. This would have to be very carefully handled to create a pleasant, visually pleasing environment. The guideway will be climbing at an angle requiring some fencing where it is at and below grade. Planting can screen the fencing from the street, but it will also result in the development site to the north east being visually isolated from Commercial Drive. As such, planting should screen any security fencing while ensuring maximum visual contact for the adjacent site to Commercial Drive. Where the guideway is elevated along this site, only low planting should be used to create a sense of openess.

VICTORIA DIVERSION
KEY:
ALRT
RIGHT OF WAY
PEDESTRIAN MOVEMENT
SECURITY FENCING.
PLANTING
SENSE OF ENCLOSURE
LIGHTING
VIEWS
PANORAMIC VIEWS
SLOPE
City of Vancouver
Planning Department
ANALYSIS
OBJECTIVES
SECTION
URBAN DESIGN
VIEWS TO MOUNTAINS
VIEWS TO TROUT LAKE
SLOPES DOWN
REDEVELOPMENT LIKELY TO CREATE A STRONGER SENSE OF ENCLOSURE
ALRT ROW
VICTORIA DIVERSION
ALLOW FOR VIEWS THROUGH TO THE STREET FROM THE BUILDING
MAINTAIN EXISTING VIEWS
MAXIMIZE SUNLIGHT PENETRATION
ELEVATED THE ENTIRE LENGTH


URBAN DESIGN
ANALYSIS
OBJECTIVES
SECTION
HL 91
SITE ISOLATED FROM COMMERCIAL BY CUT AND RISING GUIDEWAY
BELOW GRADE
ASCENDING & RISING
FINDLAY
PORTER
VICTORIA
COMMERCIAL DR
ELEVATED
A.L.R.T. R.O.W.
VICTORIA DIVERSION
Note: The alignment illustrated is only one of several that have been discussed. Urban design conditions may vary with alternative alignments thus requiring differing landscaping response.
LOCATE PEDESTRIAN MOVEMENT NEXT TO STREET
SCREEN GUIDEWAY FROM STREET
15TH
16TH
VICTORIA DIVERSION
(TUNNEL OPTION)
KEY:
A.L.R.T. RIGHT OF WAY
PEDESTRIAN MOVEMENT
SECURITY FENCING.
PLANTING
SENSE OF ENCLOSURE
LIGHTING
VIEWS
PANORAMIC VIEWS
SLOPE
City of Vancouver
Planning Department




PLAN




SECTION

BOARD OF PARKS AND RECREATION
CITY OF VANCOUVER
2099 BEACH AVENUE

A.L.R.T.
LANDSCAPING

VICTORIA DIVERSION

VANNESS WEST
(HULL STREET TO
NANAIMO STREET

This section of the right-of-way is characterized by its low density residential character and prominent position on a gradual north facing slope that opens up clear breathtaking views of city, park and mountains.

The guideway is elevated from the Victoria Diversion to the Nanaimo Street Station and offers numerous scenic views for the A.L.R.T. rider.

Landscape Concept

A naturalalistic rather than domesticated ground cover is suggested for this section of the A.L.R.T right-of-way. Covers especially designed for use on areas where low maintenance is planned should be selected. The ground cover should do well in areas of reduced fertility and poor soil conditions with a minimum of fertilization and maintenance.

Large coniferous trees are suggested in natural appearing clusters where homes will suffer loss of privacy and visual intrusions. A thick cluster could be located prior to the major view opening to create a dramatic visual transition for A.L.R.T. riders.

Small meadows of colourful deciduous trees are also suggested to break the monotony created by the coniferous stands. Deciduous trees should be selected on the basis of year round colour and appeal.

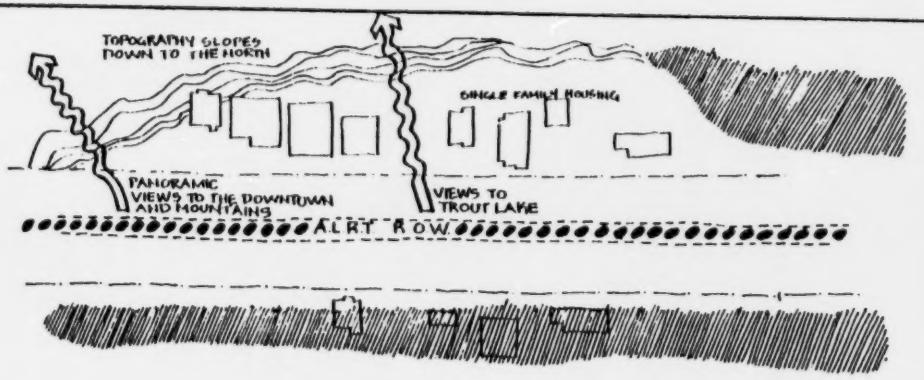
Natural grasses are suggested as a ground cover for this section of the A.L.R.T. right-of-way. The mixture may include legumes that flower over a long period of time, creating a showy, colourful natural land cover that can easily be introduced by hydro seeding. Provision should be made towards providing a pedestrian path as well as appropriate lighting.

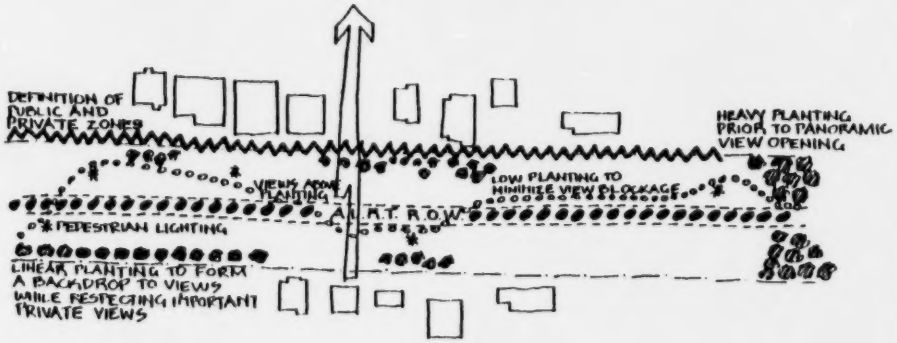
# URBAN DESIGN

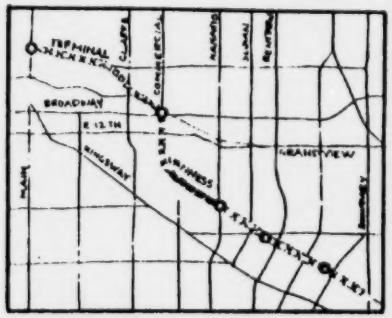
ANALYSIS

OBJECTIVES

SECTION


TOPOGRAPHY SLOPES DOWN TO THE NORTH
SINGLE FAMILY HOUSING
PANORAMIC VIEWS TO THE DOWNTOWN AND MOUNTAINS
VIEWS TO TROUT LAKE
A.L.R.T. R.O.W.


DEFINITION OF PUBLIC AND PRIVATE ZONES
HEAVY PLANTING PRIOR TO PANORAMIC VIEW OPENING
LOW PLANTING TO MINIMIZE VIEW BLOCKAGE
VIEWS ADDED PLANTING
A.L.R.T. R.O.W.
PEDESTRIAN LIGHTING
LINEAR PLANTING TO FORM A BACKDROP TO VIEWS WHILE RESPECTING IMPORTANT PRIVATE VIEWS

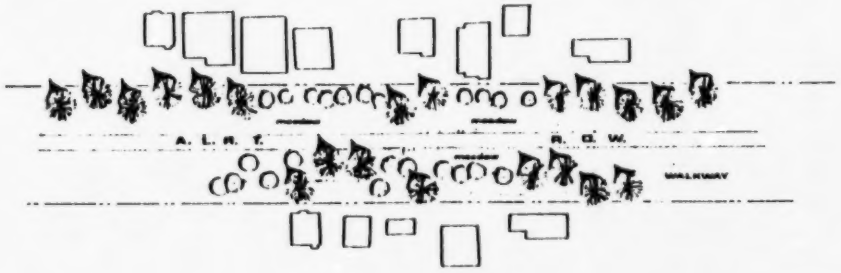



# VANNESS WEST

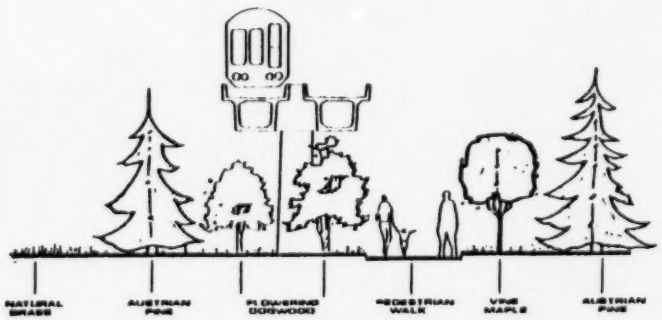
KEY:

- A.L.R.T. RIGHT OF WAY
- PEDESTRIAN MOVEMENT SECURITY FENCING.
- PLANTING
- SENSE OF ENCLOSURE
- LIGHTING
- VIEWS
- PANORAMIC VIEWS
- SLOPE

City of Vancouver
Planning Department




PLAN




SECTION

## OBJECTIVES

- SAFETY & SECURITY

  Maximize safety to residence living along the ALRT right-of-way and minimize the possibility of vandalism to the system.

- PRIVACY

  Ensure that the impact on privacy of local residents living adjacent to the ALRT right-of-way is reduced.

- VIEWS

  Respect the mountain view of residents along the ALRT right-of-way and exploit the possibilities of panoramic views for the enjoyment of the transit rider.

- AMENITIES

  Optimize the potential for public use of the width of B. C. Hydro right-of-way that is not required for the ALRT tracks

- LOW COST MAINTENANCE

  Develop a landscape concept which is low in maintenance needs

- SEASONAL APPEAL

  Ensure that the landscape treatment defines each of the four seasons: winter, spring, summer and fall experienced by the West Coast residents

## PLANT MATERIALS

- PICEA GLAUCA CONICA (DWARF ALBERTA SPRUCE)

  Fast growing, pyramidal in shape and tolerant of most soils. Rapid growth to height of 10 - 15 in 15 years.

- CORNUS FLORIDA RUBRA (FLOWERING DOGWOOD)

  A small bushy tree with horizontal branching pattern. Red flowers covering the whole tree in May. Rich coloured foliage in fall

- ACER CIRCINATUM (VINE MAPLE)

  A native of the northwest and one of the best trees for any landscaping project. Wine-red and white flowers in April. Brilliant golden and red fall colouring

- NATURAL GRASS

  Excellent as a ground cover providing a natural appearance, and requiring little maintenance. When flowers are included, year round colour and appeal increases

- PERNETTYA (PRAIRIE SNOW, CHARLES ZIPPERIAN)

  Clusters of small, fragrant, bell creamy white flowers in the spring. Berries of bright pastel hermes in fall. Very hardy, in the nanaimer area

BOARD OF PARKS AND RECREATION
CITY OF VANCOUVER
2099 BEACH AVENUE

A. L. R. T.
LANDSCAPING

VANNESS - WEST
(NANAIMO to VICTORIA)

VANNESS EAST

(NANAIMO STREET
TO BOUNDRY ROAD)

Small scale residential development predominates in this section of the right-of-way. The topography eliminates any distant views, although the neighbourhood depth perception from the A.L.R.T. right-of-way increases and diminishes as the route progresses. This is due, in part, to changes in the alignment of the A.L.R.T. guideway.

From the Nanaimo Street Station, the alignment stays at grade progressing into cut at Penticton Street. It proceeds below grade to Manor Street and becomes elevated until reaching Ann Street. The alignment remains at grade from Ann Street to Boundary Road.

Landscape Concept

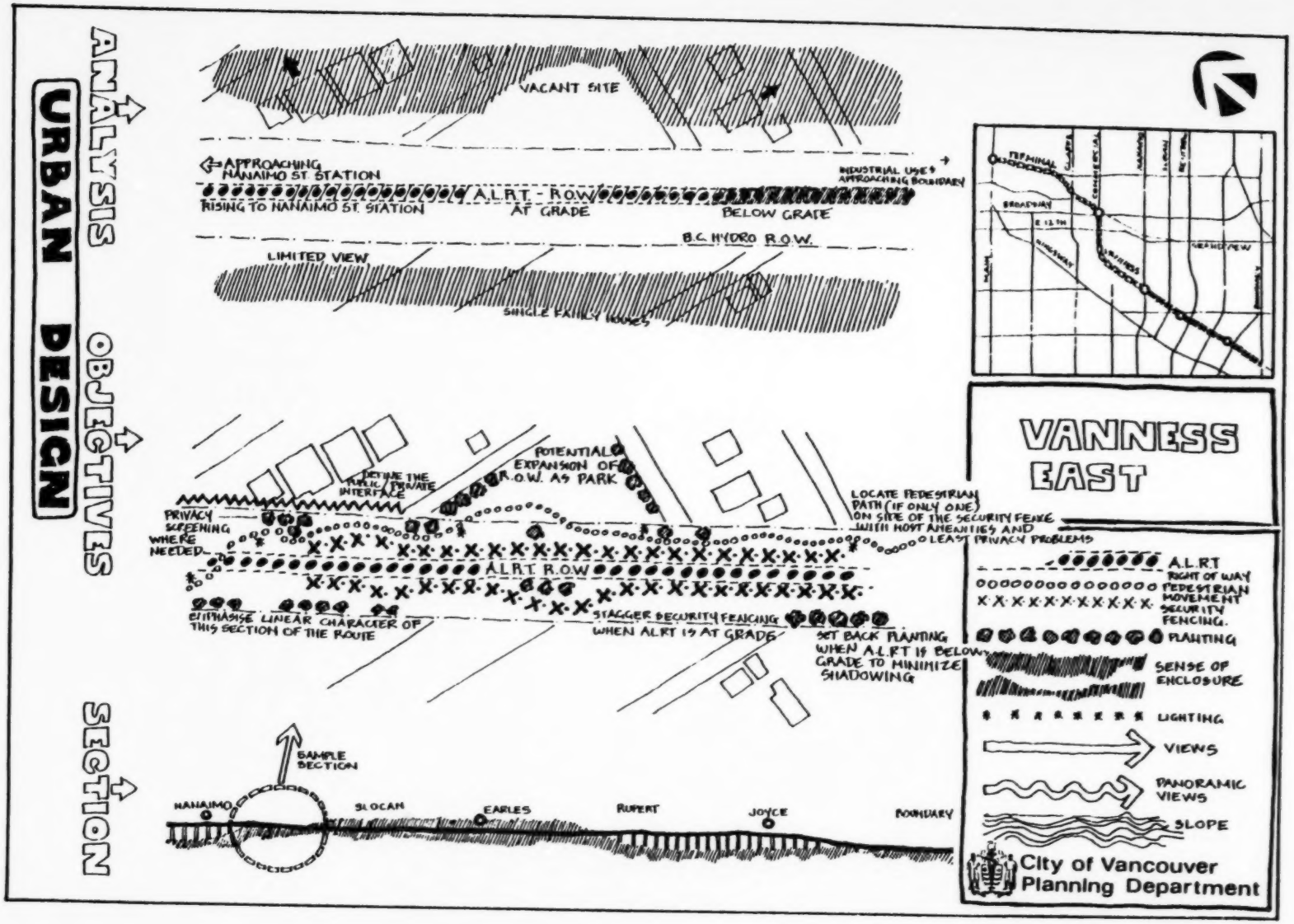
Once again a naturalistic ground cover and large coniferous trees are suggested for screening purposes. Small informal clusters of colourful deciduous trees are suggested for variety within the stands of coniferous trees.

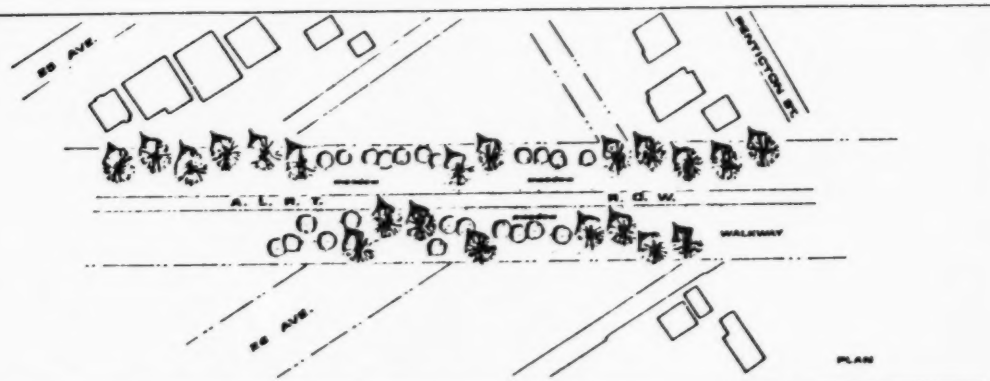
As with the previous section, natural grasses mixed with flowering legumes are suggested as a ground cover. Large Austrian Pines and small clusters of Vine Maple, Flowering Dogwood and/or Sumac are also suggested for use as trees.

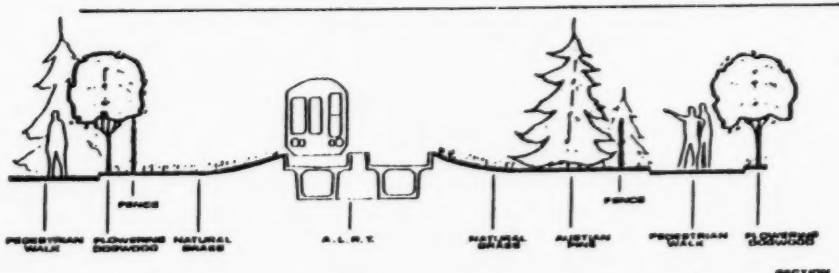
Where A.L.R.T. is in cut or at grade, a continuous fencing screen should be used in conjunction with landscaping materials to reduce noise from and improve security of the ALRT system. Applications of thorny plants are recommended to screen any impact created by the fencing material, while adding an extra deterrent for anyone wishing to disregard the fence. The fence can be staggered to minimize the impression of being in a trench for A.L.R.T. riders. Trees should be somewhat set back from the A.L.R.T. cut to limit shadowing.

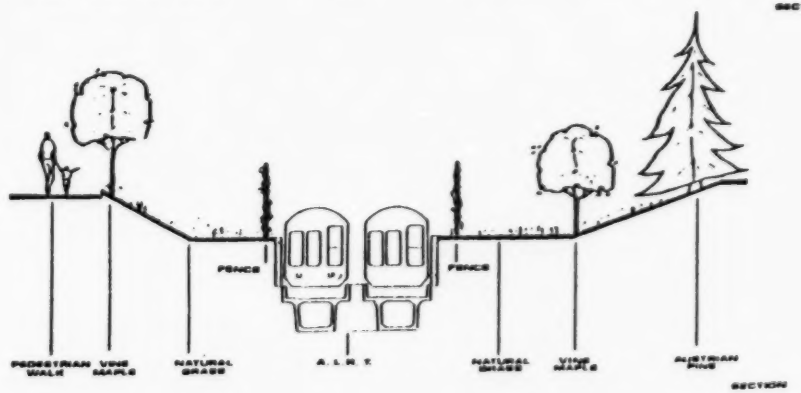
Clusters of large Austrian Pines (Pinus Nigra), which are fast growing, pyramidal shaped and tolerant of most soils, are suggested where screening is required.

Small meadows of Vine Maple (Acer Circinatum), Flowering Dogwood, (Cornus Florida) and/or Sumac (Rhus Typhina) are suggested to add colour and year-round appeal.


URBAN DESIGN
ANALYSIS
OBJECTIVES
SECTION
VACANT SITE
APPROACHING NANAIMO ST. STATION
INDUSTRIAL USES APPROACHING BOUNDARY
A.L.R.T. - R.O.W.
RISING TO NANAIMO ST. STATION
AT GRADE
BELOW GRADE
B.C. HYDRO R.O.W.
LIMITED VIEW
SINGLE FAMILY HOUSES
TERMINAL
BROADWAY
E. 12TH
HASTINGS
MAIN
KOOTENAY
VANNESS EAST
POTENTIAL EXPANSION OF R.O.W. AS PARK
DEFINE THE PUBLIC/PRIVATE INTERFACE
PRIVACY SCREENING WHERE NEEDED
LOCATE PEDESTRIAN PATH (IF ONLY ONE) ON SITE OF THE SECURITY FENCE WITHIN MOST AMENITIES AND LEAST PRIVACY PROBLEMS
A.L.R.T. R.O.W.
EMPHASISE LINEAR CHARACTER OF THIS SECTION OF THE ROUTE
STAGGER SECURITY FENCING WHEN A.L.R.T. IS AT GRADE
SET BACK PLANTING WHEN A.L.R.T. IS BELOW GRADE TO MINIMIZE SHADOWING
SAMPLE SECTION
NANAIMO
SLOCAN
EARLES
RUPERT
JOYCE
BOUNDARY
A.L.R.T. RIGHT OF WAY
PEDESTRIAN MOVEMENT
SECURITY FENCING.
PLANTING
SENSE OF ENCLOSURE
LIGHTING
VIEWS
PANORAMIC VIEWS
SLOPE
City of Vancouver
Planning Department




## OBJECTIVES

- SAFETY & SECURITY

  Maximize safety to residence living along the ALRT right-of-way and minimize the possibility of vandalism to the system.

- PRIVACY

  Ensure that the impact on privacy of local residents living adjacent to the ALRT right-of-way is reduced.

- VIEWS

  Respect the uncertain view of residence along the ALRT right-of-way and explore the possibilities of permanent views for the enjoyment of the transit rider.

- UNDERUSED

  Optimize the permanent for public use of the width of B. C. Hydro right-of-way that is not required for the ALRT tracks.

- LOW COST MAINTENANCE

  Develop a landscape concept which is low to maintenance costs.

- SEASONAL APPEAL

  Ensure that the landscape treatments defines each of the four seasons visited, spring, summer and fall experienced by the West Coast residence.

## PLANT MATERIALS

- DWARF SIGNAL (AUSTRIAN PINES)

  Fast growing, pyramidal in shape and tolerant of most soils. Rapid growth to height of 12' - 15' in 10 years.

- UPRIGHT FLORIDA 'KOUSA' (FLOWERING DOGWOOD)

  A small bushy tree with horizontal branching pattern. Red flowers covering the whole tree in May. Rich coloured foliage in fall.

- ACER CIRCINATUM (VINE MAPLE)

  A native to the Northwest and one of the best trees for any landscaping project. Wine-red and white flowers in April. Brilliant golden and red fall colouring.

- NATURAL GRASS

  Functions as a ground cover providing a natural appearance, and requiring little maintenance. When flowers are confined, year round texture and upkeep increased.

- HEMEROCALLIS 'ORANGE JAM' (DOUBLE FLOWERED)

  Clusters of small, fragrant, dull creamy white flowers in the spring. Source of bright orange colour in fall. Very hardy in the Vancouver area.

BOARD OF PARKS AND RECREATION
CITY OF VANCOUVER
2099 BEACH AVENUE

PROJECT TITLE
A. L. R. T.
LANDSCAPING

DRAWING TITLE
VANNESS - EAST
(BOUNDARY TO MARINE DR.)

## COST ESTIMATE

The installation cost of the suggested landscape treatment is estimated to be about $1 Million. This includes topsoil, soil preparation, fencing, walkway, and labour and materials for planting.

Excluded are the costs of grading, retailing walls, drainage and irrigation.

The annual maintenance costs are estimated to be about $100,000. but it should be noted that these costs are expected to be higher during the initial 5-year establishment period.

# Appendix A: Plant Materials

Plant Materials

Trees

- Acer Circinatum (Vine Maple)

  A native of the northwest and one of the best trees for any landscaping project. Red-wine and white flowers in April. Brilliant golden and red fall colourings.
  - Purchased size - 3.5 metre height
  - Mature size - 4.5 to 12 metres

- Acer Platancides (Norway Maple)

  A fast growing tree. Conspicuous clusters of yellow flowers produced on bare branches in April. Bright yellow leaves in fall.
  - Purchased size - 7 cm/2.8 in. caliper
  - Mature size - 8 to 20 metres

- Cornus Florida Cherokee Chief (Red Flowering Dogwood)

  Small bushy tree with horizontal branching pattern. Red flowers cover the whole tree in May. Rich coloured foliage in the fall.
  - Purchased size - 6 cm/2 in. caliper
  - Mature size - 4.5 metres

- Pinus Nigra (Austrian Pine)

  Fast growing pyramidal in shape and tolerant of most soils. Rapid growth to height of 10' - 15' in 15 years.
  - Purchased size - 4.5 metre height
  - Mature size - 15 metres

- Thuja Occidentalis Fastigiata (Pyramidal Cedar)

  Narrow, dense, erect, pyramidal form, very popular for screening. Green foliage; no trimming required.
  - Purchased size - 7 cm caliper
  - Mature size - 6 - 15 metres

Shrubs

- Pyracantha ("Orange Glow")

  Clusters of small fragrant dull creamy white flowers in the spring. Masses of bright scarlet berries in fall. Very hardy in the Vancouver area.

General Covers

- Hedera Helix (English Ivy)

  Vigorous evergreen vine with small dark green leathery leaves. Hardy sun or shade.

- Natural Grasses

  Excellent as a ground cover providing a natural appearance, and requiring little maintenance. When flowers are included, year-round colour and appeal increases.

POOR

QUALITY

ORIGINAL